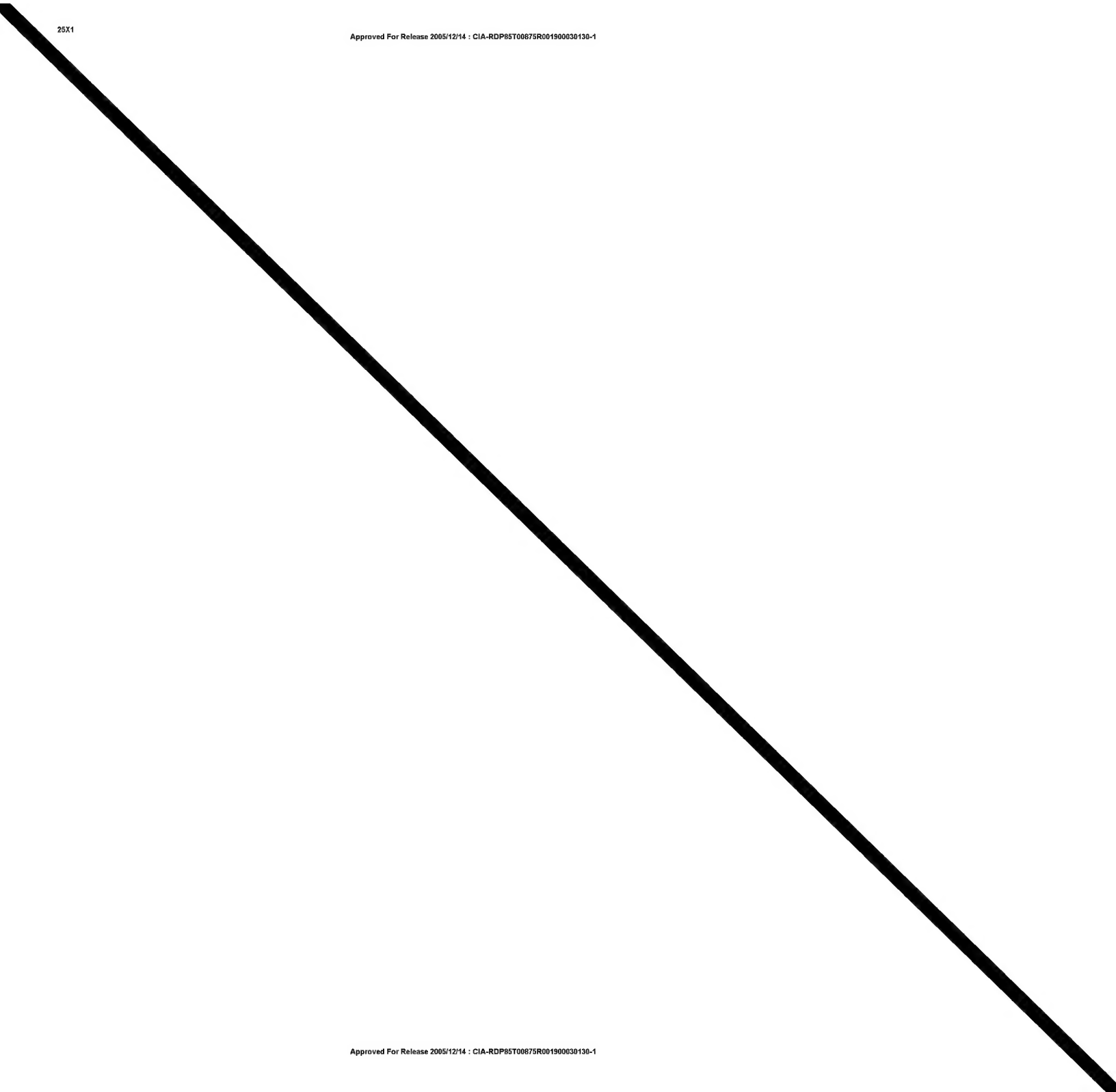

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8-6525
MICRO ONLY

4 October 1974

MEMORANDUM FOR: Chairman, Interagency Intelligence Advisory Group on Exchanges

ATTENTION :

THROUGH :

SUBJECT :

REFERENCE :

25X1

1. Attached are preliminary comments on the Soviet proposal for a joint development program in scientific instrumentation.

2. Please contact [redacted] who prepared the attachment, if you desire additional comments as further details of the Soviet proposal become available.

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Attachment:
as stated

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ATTACHMENT

Comments on Proposed US/USSR S&T Cooperation in Scientific Instruments

1. The USSR is proposing a new scientific and technical exchange program that would provide for joint R&D in scientific instruments, especially in polarography, chromatography, isotope separation and ultracentrifuges. Polarography is a technique of chemical analysis (originally developed in Czechoslovakia) which measures changes in voltage against current characteristics of the sample under test. Chromatography is a technique of chemical analysis which measures the difference in diffusion rates of materials through a liquid or gas; it is widely used in the chemical industry as well as in scientific research. Isotope separation and ultracentrifuges are used in material separation or purification for such varied purposes as production of nuclear weapons material or medical research.

2. In general these classes of instruments are general purpose. Like all general purpose types, they have a wide range of uses in industry and scientific research, civil and otherwise. With some possible exceptions in specific cases, they are not COCOM-controlled, and may be exported to the USSR from this country without a validated export license.

3. The general field of scientific instrumentation is one in which the Soviets are weak, based more on poor organization of their industry rather than on any lack of scientific knowledge. Production of scientific instruments is hampered by a lack of standardization and a tendency for end-users to build their own instruments rather than purchase from a specialized manufacturer. Organizations which do produce such instruments for sale are not responsive to the needs of customers and have a tendency to continue obsolete models in production. That high quality scientific instruments are not widely available in the USSR is admitted by the Soviets themselves; M. V. Keldysh, Chairman of the USSR Academy of Sciences has said that the "decisive factor in raising work productivity of scientists and level of research at present is scientific instruments.... If scientific instrument construction is not developed in the necessary fashion, science is doomed to stagnation."

4. A joint R&D program in scientific instruments would be of little advantage to the US and could be commercially disadvantageous by enabling the USSR to develop and manufacture instruments that it now imports from the US. Large numbers of chromatographs and other scientific instruments have been exported to the USSR in recent years. The value of such exports is not large, but is growing and represents a dominant share of exports of all instruments to the USSR, as may be seen in the tabulation below:

	1971	1972	1973
US Exports of Scientific Instruments to USSR ($ million)	1.98	2.53	4.28
Share of Total US Exports of Instruments to USSR	45%	70%	69%

5. Although most areas of application of these instruments are not strategic per se, it is possible that specific areas of R&D on specific types of instruments could have spin-off effects in strategic areas. It is difficult to assess this in view of the lack of specifics in the Soviet proposal so far. In principle it should be possible to restrict R&D to areas which would not have a direct and immediate military effect, bearing in mind that an instrument which can analyze a civilian chemical can probably be used to analyze a military chemical as well.

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